UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R036XB130NM

Site Name: Shale Hills

Precipitation or Climate Zone: 10 to 16 inches

Phase:

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs on mesa side slopes as rolling hills dissected by small arroyos. Slopes range from 3 to 35 percent. Elevations range from 5,800 feet to 6,900 feet above sea level.

Land Form:

1. Hillside
2.
3.

Aspect:

1. N/A
2.
3.

	Minimum	Maximum
Elevation (feet)	5,800	6,900
Slope (percent)	3	35
Water Table Depth (inches)	N/A	N/A

Flooding:	**Minimum**	**Maximum**
Frequency	N/A	N/A
Duration	N/A	N/A

Ponding:	**Minimum**	**Maximum**
Depth (inches)	N/A	N/A
Frequency	N/A	N/A
Duration	N/A	N/A

Runoff Class:

Negligible to medium.

CLIMATIC FEATURES

Narrative:

Average annual precipitation varies from about 10 inches to just over 16 inches. Fluctuations ranging from about 5 inches to 25 inches are not uncommon. The overall climate is characterized by cold dry winters in which winter moisture is less than summer. As much as half or more of the annual precipitation can be expected to come during the period of July through September. Thus, fall conditions are often more favorable for good growth of cool-season perennial grasses, shrubs, and forbs than are those of spring.

The average frost-free season is about 120 days and extends from approximately mid May too early or mid September. Average annual air temperatures are 50 degrees F or lower and summer maximums rarely exceed 100 degrees F. Winter minimums typically approach or go below zero. Monthly mean temperatures exceed 70 degrees F for the period of July and August.

Rainfall patterns generally favor warm-season perennial vegetation, while the temperature regime tends to favor cool-season vegetation. This creates a somewhat complex community of plants on any given ecological site, which is quite susceptible to disturbance and is at or near its productive potential only when both the natural warm and cool-season dominants are present.

Climate data was obtained from http://www.wrcc.sage.dri.edu/summary/climsmnm.html web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

	Minimum	Maximum
Frost-free period (days):	102	148
Freeze-free period (days):	119	174
Mean annual precipitation (inches):	10	16

Monthly moisture (inches) and temperature (^{0}F) distribution:

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	.40	.91	12.9	47.0
February	.43	.65	16.6	51.2
March	.47	1.10	20.9	57.1
April	.30	.49	26.1	65.3
May	.46	.98	33.4	74.2
June	.51	.57	41.4	84.2
July	2.15	3.45	50.4	85.1
August	2.28	3.03	48.7	82.4
September	1.29	1.68	41.4	77.9
October	.81	1.12	29.4	69.2
November	.38	.71	19.1	57.3
December	.53	.95	13.1	48.9

Climate Stations:

				Period		
Station ID	290640	Location	Augustine 2E, NM	From: 05/01/26	To:	07/31/00
Station ID	296812	Location	Pietown 19NE, NM	From: 09/01/88	To:	07/31/00
Station ID	297180	Location	Quemado, NM	From: 08/01/15	To:	07/31/00

INFLUENCING WATER FEATURES

Narrative:

This site is not influenced by water from a wetland or stream.

Wetland description:

System	Subsystem	Class
N/A		

If Riverine Wetland System enter Rosgen Stream Type:
N/A

REPRESENTATIVE SOIL FEATURES

Narrative:

These soils have formed in place from shale. The soils are deep with very stony loam or clay loam surface textures. Subsoils are clay loams and clays. Also, the underlying materials are clays and clay loams. The soils are calcareous from 14 to 20 inches below the surface to 60 inches. Permeability is slow (0.06 to 0.2 inches per hour) to very slow (less than 0.06 inches per hour). Water-holding capacity is high (7.5 to 10 inches). Reaction is neutral to strongly alkaline.

Parent Material Kind: Marine deposits
Parent Material Origin: Shale-unspecified

Surface Texture:

1. Very stony loam
2. Very stony clay loam
3. Clay loam 4. Extremely cobbly clay loam 5. Very cobbly clay 6. Channery silty clay loam

Surface Texture Modifier:

1. Cobbly
2. Stony
3. Channery

Subsurface Texture Group: Clayey
Surface Fragments <=3" (% Cover): 35 to 60
Surface Fragments >3" (% Cover): >60

Subsurface Fragments <=3" (%Volume): 15 to 35
Subsurface Fragments >=3" (%Volume): >60

	Minimum	Maximum
Drainage Class:	Well	Well
Permeability Class:	Impermeable	Moderately slow
Depth (inches):	4	>72
Electrical Conductivity (mmhos/cm):	0.00	4.00
Sodium Absorption Ratio:	0.00	13.00
Soil Reaction (1:1 Water):	7.4	9.0
Soil Reaction (0.1M CaCl2):	N/A	N/A
Available Water Capacity (inches):	9	12
Calcium Carbonate Equivalent (percent):	N/A	N/A

PLANT COMMUNITIES

Ecological Dynamics of the Site:

Plant Communities and Transitional Pathways (diagram)

Plant Community Name: Historic Climax Plant Community

Plant Community Sequence Number: 1 **Narrative Label**: HCPC

Plant Community Narrative: Historic Climax Plant Community
This grassland site is dominated by alkali sacaton. Shrubs are scattered and a few oneseed juniper are found. Forbs are a minor component.
*NOTE: At higher elevations (above 6,500 feet) and north facing slopes, black grama is not often found in amounts exceeding 5 percent even in the potential plant community. In these instances alkali sacaton may go as high as 60 percent, galleta 40 percent, and blue grama may reach 20 percent.

Canopy Cover:	
Trees	0
Shrubs and half shrubs	<3 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	11
Bare ground	35
Surface cobble and stone (Basalt rock)	50
Litter (percent)	<4
Litter (average depth in cm.)	0 - 1

Plant Community Annual Production (by plant type):

Annual Production (lbs/ac)

Plant Type	Low	RV	High
Grass/Grasslike	213	387	561
Forb	8	14	20
Tree/Shrub/Vine	13	23	33
Lichen			
Moss			
Microbiotic Crusts			
Total	250	455	660

Plant Community Composition and Group Annual Production:

Plant Type - Grass/Grasslike

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
1	SPAI	Alkali Sacaton	137 – 228	137 – 228
2	PLJA	Galleta	91 – 137	91 – 137
3	BOGR2	Blue Grama	5 – 23	5 – 23
4	BOER4	Black Grama*	0 – 46	0 – 46
5	BOCU	Sideoats Grama	5 – 23	5 – 23
6	BOBA3 BOSA	Cane Bluestem Silver Bluestem	5 – 23	5 – 23
7	2GRAM	Other Grasses**	0 – 23	0 - 23

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
8	2FA	Other Annual Forbs	5 – 14	5 – 14
9	2FP	Other Perennial Forbs	5 – 14	5 - 14

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
10	JUMO PIED	Oneseed Juniper Pinyon Pine	0 – 23	0 – 23
11	NOMI	Sacahuista	0 – 14	0 – 14
12	ATCA2	Fourwing Saltbush	0 – 18	0 – 18
13	GUSA2	Broom Snakeweed	5 – 14	5 – 14
14	2SD	Other Shrubs**	5 – 14	5 - 14

Plant Type - Lichen

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Moss

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Microbiotic Crusts

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

** Other plants include annual fescue, wolftail, cholla, yucca spp., dropseeds, hesperostipa spp., and annual chenopodes.

Plant Growth Curves

Growth Curve ID **0320NM**

Growth Curve Name: **HCPC**

Growth Curve Description: **An alkali sacaton dominated grassland with scattered shrubs and a minor forb component.**

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	5	7	10	15	25	25	8	5	0	0

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

No Data

Hydrology Functions:

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

Hydrologic Interpretations	
Soil Series	**Hydrologic Group**
Hospah	D
Rana	D
Rojo	?
Shingle	D
Tekapo	D

Recreational Uses:

No Data

Wood Products:

This site produces no significant wood products in its potential plant community.

Other Products:

Grazing:

This site is suitable for grazing by all classes of livestock in all seasons. However, it is poorly suited to continuous yearlong use if potential natural vegetation is to be maintained. Inadequate management of the site results in the deterioration of the potential plant community. Alkali sacaton, sideoats grama, black grama, and fourwing saltbush decrease. Plants that increase includes galleta, blue grama, cane and silver bluestem, broom snakeweed, and annuals. Very little perennial ground cover and large areas of bare, exposed soil indicate severe deterioration. A planned grazing system with periodic deferment is best to maintain the desirable balance between plant species and to maintain the natural productivity and plant vigor. During periods of high precipitation the soil can become saturated. Grazing should be delayed until the soil is firm. The high percentage of stones on the surface limits the use of most equipment.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index	**Ac/AUM**
100 - 76	4.0 – 5.2
75 – 51	5.0 – 7.5
50 – 26	7.0 – 13.5
25 – 0	13.5+

Plant Part	Code	Species Preference	Code
Stems	**S**	**None Selected**	**NS**
Leaves	**L**	**Preferred**	**P**
Flowers	**F**	**Desirable**	**D**
Fruits/Seeds	**F/S**	**Undesirable**	**U**
Entire Plant	**EP**	**Not Consumed**	**NC**
Underground Parts	**UP**	**Emergency**	**E**
		Toxic	**T**

Plant Preference by Animal Kind:

Animal Kind: Livestock

Animal Type: Cattle

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Alkali Sacaton	Sporobolus airoides	EP	D	D	D	D	D	P	P	P	U	U	U	D
Black Grama	Bouteloua eriopoda	EP	P	P	P	D	D	D	D	D	D	D	P	P
Sideoats Grama	Bouteloua curtipendula	EP	P	P	P	P	P	P	P	P	P	P	P	P
Fourwing Saltbush	Atriplex canescens	EP	P	P	P	P	P	D	D	D	D	D	D	P

SUPPORTING INFORMATION

Associated sites:

Site Name	Site ID	Site Narrative

Similar sites:

Site Name	Site ID	Site Narrative

State Correlation:

This site has been correlated with the following sites: _____

Inventory Data References:

Data Source	# of Records	Sample Period	State	County

Type Locality:

State: **New Mexico**

County: **Catron, Socorro**

Latitude: _____

Longitude: _____

Township: _____

Range: _____

Section: _____

Is the type locality sensitive? **Yes** ☐ **No** ☐

General Legal Description: _____

Relationship to Other Established Classifications:

Other References:

Data collection for this site was done in conjunction with the progressive soil surveys within the New Mexico and Arizona Plateaus and Mesas 36 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: McKinley, Sandoval, Cibola, Socorro, Catron, Rio Arriba.

Characteristic Soils Are:	
Hospah	Rana
Rojo	Shingle
Tekapo	
Other Soils included are:	

Site Description Approval:

Author	Date	Approval	Date
Don Sylvester	05/08/84	Don Sylvester	05/08/84

Site Description Revision:

Author	Date	Approval	Date
Elizabeth Wright	07/08/02	George Chavez	12/16/02